

**Amendments to the Claims:**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of scanning comprising:  
providing a scanning system having a sample holder and a relatively movable scanning device, the sample holder having a rotatable or longitudinal axis;  
performing a scan of at least a part of an object located on the sample holder and of at least a portion of a surface of the sample holder;  
using data from the scan, establishing orientation of a plane of the sample holder; holder and thereby establishing any misalignment or non-collinearity of the sample holder with respect to the rotatable or longitudinal axis; and  
interpreting data from the scan using the orientation of the sample holder, ~~the orientation being established using data from the scan of the object~~ holder in order to correct the data for any misalignment or non-collinearity.
2. (Previously Presented) A method according to claim 1 wherein the orientation is established by defining a plane of the sample holder.
3. (Previously Presented) A method according to claim 2 wherein the plane in which orientation is established is limited by boundaries.
4. (Previously Presented) A method according to claim 1 wherein the orientation is established by extracting at least three measurements.
5. (Previously Presented) A method according to claim 1 wherein the orientation is established by extracting data for at least 240° around the surface of the sample holder.
6. (Previously Presented) A method according to claim 1 wherein the orientation is established by measuring during a single process.

7. (Previously Presented) A method according to claim 1 wherein the orientation is established by measuring during more than one discrete processes.

8. (Previously Presented) A method according to claim 1 wherein the orientation is established within a defined vertical envelope with respect to the sample holder.

9. (Currently Amended) A method of scanning comprising:  
providing a scanning system having a sample holder and a relatively movable scanning device, the sample holder having a rotatable or longitudinal axis;  
scanning-performing a datum scan to establish any misalignment or non-colinearity of the sample holder with respect to the rotatable or longitudinal axis;  
scanning-performing a scan of a sample; and  
interpreting data from the sample scan using any misalignment or non-colinearity data from the datum scan in order to correct the data for any misalignment or non-colinearity;  
wherein the scanning system automatically carries out the datum and sample scans.

10. (Currently Amended) A method of scanning comprising:  
providing a scanning system having a sample holder and a relatively movable scanning device, the sample holder having a rotatable or longitudinal axis;  
scanning-performing a datum scan to establish any misalignment or non-colinearity of the sample holder with respect to the rotatable or longitudinal axis;  
scanning-performing a scan of a sample; and  
interpreting data from the sample scan using any misalignment or non-colinearity data from the datum scan in order to correct the data for any misalignment or non-colinearity;  
wherein both the datum and sample scans are carried out effectively as one scan.

11. (Previously Presented) The method of scanning according to claim 1 wherein the scan of the object and the scan of at least a portion of the sample holder are conducted as a single scan.

12. (Currently Amended) The method of scanning according to claim 9 wherein the ~~seanning a datum~~ scan and the ~~seanning scan of~~ a sample are conducted as a single scan.